



Addendum

for the PowerBlade PBC18 Installation Guide

(PN 613-50144-00 Rev C)

The AT-PB1005G Gigabit Ethernet Media Converter is part of the PowerBlade family. This addendum describes features of the AT-PB1005G and contains the maximum operating distances, the twisted pair port specifications, and cabling specifications for this module.

AT-PB1005G Gigabit Ethernet Media Converter Module

The AT-PB1005G Gigabit Ethernet Media Converter is designed for the PowerBlade PBC18 Chassis. This Gigabit Ethernet media converter extends the distance of your network by converting Gigabit Ethernet data between twisted pair and fiber optic cabling. The AT-PB1005G media converter features a 1000Base-T twisted pair port and a 1000Base-X fiber optic port. The twisted pair port has a RJ-45 connector with a maximum operating distance of 550 meters (1,804 feet). The fiber optic port has a GBIC expansion slot for either a 1000Base-SX or 1000Base-LX GBIC transceiver. Each GBIC transceiver features an SC connector with a maximum operating distance of 220 meters (721 feet) to 70 kilometers (43.4 miles), depending on the model and type of fiber optic cable used. The GBIC transceivers are sold separately. Contact your Allied Telesyn sale representative for assistance.

The twisted pair port and the fiber optic port both operate at 1000 Mbps in full-duplex mode only.

The Allied Telesyn certified GBIC transceivers available for use with the AT-PB1005G media converter are listed below:

- | | |
|------------------------------------|------------------------------------|
| <input type="checkbox"/> AT-G8SX | <input type="checkbox"/> AT-G8LX40 |
| <input type="checkbox"/> AT-G8LX10 | <input type="checkbox"/> AT-G8LX70 |
| <input type="checkbox"/> AT-G8LX25 | |

For installation instructions for the AT-PB1005G module, refer to the **PowerBlade PBC18 Installation Guide**. For a complete description of the functions and features of the GBIC transceivers and for installation instructions, refer to the **AT-G8SX and AT-G8LX GBIC Transceivers Installation Guide**. Both guides are available from the Allied Telesyn web site at www.alliedtelesyn.com.

See Figure 1 for an illustration of the AT-PB1005G Gigabit Ethernet Media Converter.

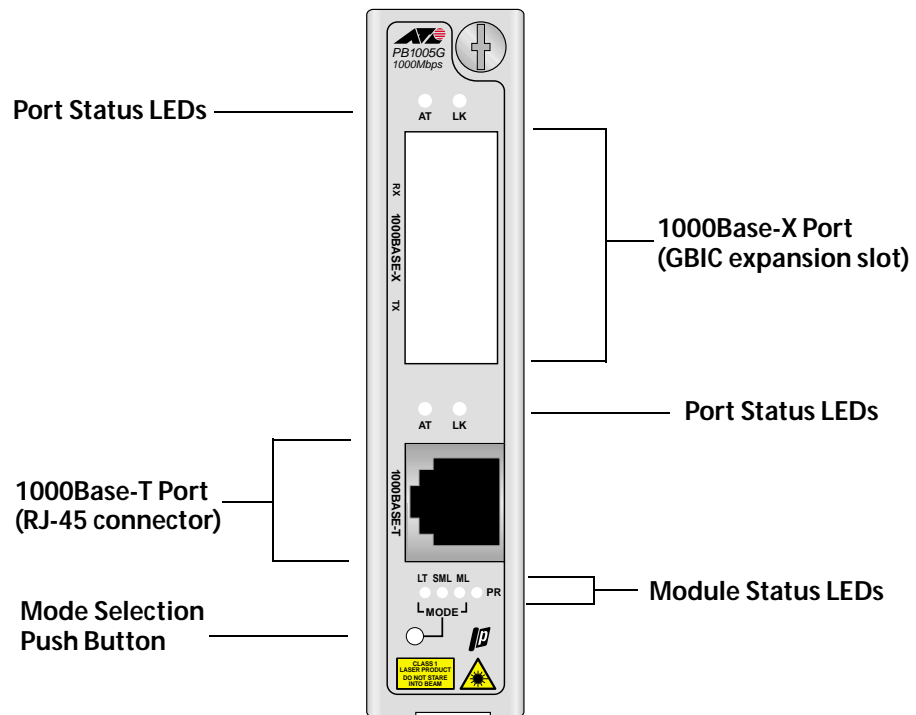


Figure 1 AT-PB1005G Gigabit Ethernet Media Converter

Table 1 lists the connector types and cabling distances for the AT-PB1005G module and the GBIC transceivers.

Table 1 Maximum Operating Distances

Port	Connector	Maximum Distance
1000Base-T	RJ-45	550 m (1,804 ft)
1000Base-SX		
AT-G8SX	SC	220 m (721 ft) ¹
		500 m (1,640 ft) ²
1000Base-LX		
AT-G8LX10	SC	10 km (6.2 mi) ³
AT-G8LX25	SC	25 km (15.5 mi) ³
AT-G8LX40	SC	40 km (24.8 mi) ³
AT-G8LX70	SC	70 km (43.4 mi) ³

1. Using 62.5/125 micron multimode fiber optic cable.

2. Using 50/125 micron multimode fiber optic cable.

3. Using 10/125 micron single-mode fiber optic cable.

For fiber optic cabling specifications for the GBIC transceivers, refer to the **AT-G8SX and AT-G8LX GBIC Transceivers Installation Guide**.

Features

The AT-PB1005G media converter has the following features:

- ☐ LEDs for unit and port status
- ☐ 1000Base-T twisted pair port with a maximum operating distance of 550 meters (1,804 feet)
- ☐ Expansion slot for an 1000Base fiber optic GBIC transceiver with a maximum operating distance of 220 meters (721 feet) to 70 kilometers (43.4 miles), depending on the model and type of fiber optic cable used
- ☐ Full-duplex operation on both ports
- ☐ Mode selection button to toggle between Link Test, Smart MissingLink, and MissingLink

Status LEDs

Table 2 list the status LEDs.

Table 2 AT-PB1005G Status LEDs

LED	Color	Description
PR	Green	Power is applied to the media converter.
AT	Green	Data is being received or transmitted on the port.
LK	Green	A link has been established on the port.
Mode Status		
LT	Green	Link test is enabled.
SML	Green	Smart MissingLink is enabled.
ML	Green	MissingLink is enabled.

Twisted Pair Port

The 1000Base-T port on the AT-PB1005G media converter has an RJ-45 connector and is designed to operate with Category 5 or better shielded or unshielded twisted pair cable.

An RJ-45 twisted pair port on a 1000 Mbps Ethernet network device can have one of two possible wiring configurations: MDI or MDI-X. The RJ-45 port on a PC, router, or bridge is typically wired as MDI, while the twisted pair port on a switch or hub is usually MDI-X.

To connect two network devices that have dissimilar wiring configurations, such as MDI to MDI-X, you use a straight-through twisted pair cable. To connect two network devices that have the same wiring configuration, such as MDI to MDI, you use a crossover cable.

The AT-PB1005G media converter features automatic MDI/MDI-X. Each port automatically determines the configuration of the port on the device to which it is connected and then configures itself appropriately. For example, if a port on a media converter is connected to a port on a bridge, which is typically wired as MDI, the port on the media converter automatically configures itself as MDI-X. This feature allows you to use either straight-through or crossover cables when connecting devices to the media converter. This eliminates the need for a cross-over cable.

Pinout Assignments

Figure 2 shows the pin assignments of the RJ-45 connector.

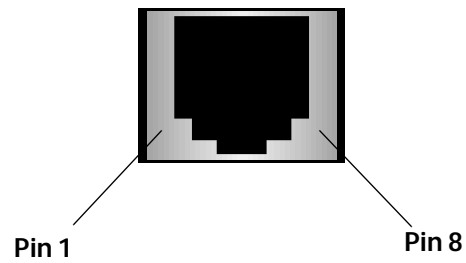


Figure 2 RJ-45 Pin Assignments

Table 3 lists the RJ-45 connector pins and their signals for a 1000Base-T.

Table 3 RJ-45 Connector Pinouts

Pinout	Pair	Signal
1	0	TX and RX+
2	0	TX and RX-
3	1	TX and RX+
4	2	TX and RX+
5	2	TX and RX-
6	1	TX and RX-
7	3	TX and RX+
8	3	TX and RX-

Fiber Optic Port (GBIC Transceivers)

The 1000Base-SX port on the GBIC transceiver has an SC connector and is designed to operate with multimode fiber optic cabling. This port has a maximum operating distance of 220 meters (721 feet) using 62.5/125 micron or 500 meters (1,640 feet) using 50/125 micron multimode fiber optic cable.

The 1000Base-LX port on the GBIC transceiver has an SC connector and is designed to operate with single-mode fiber optic cabling. This port has a maximum operating distance of 10 kilometers (6.2 miles) to 70 kilometers (43.4 miles), depending on your model, using 10/125 micron single-mode fiber optic cable.

Duplex Mode

Duplex mode refers to the way an end-node sends and receives data on the network. An end-node can operate in either half- or full-duplex mode, depending on its capabilities. An end-node that is operating in half-duplex mode can either send data or receive data, but it cannot do both at the same time. An end-node that is operating in full-duplex mode can send and receive data simultaneously. The best network performance is achieved when an end-node can operate at full-duplex, since the end-node is able to send and receive data simultaneously.

The AT-PB1005G media converter operates in full-duplex mode only. The media converter can operate with end-nodes capable of either full-duplex mode or that can auto-negotiate the duplex mode. However, it is important to remember that the two end-nodes connected to the ports on the media converter must be able to operate in full-duplex mode.

Mode Selection Button

Link Test The link test is a fast and easy way for you to test the connections between the media converter ports and the end-nodes that are connected to the ports. If a network problem occurs, you can perform a link test to determine which port is experiencing a problem, and be able to focus your troubleshooting efforts on the cable and end-node where the problem resides.

A link test is performed when the Mode Selection button is toggled until the LT LED is green. For instructions on performing a link test, refer to "Troubleshooting" in the **PowerBlade PBC18 Installation Guide**.

Note

Performing a link test does not interfere with a media converter's ability to pass network traffic.

MissingLink The MissingLink feature enables the ports on the media converter to pass the "Link" status of their connections to each other. When the media converter detects a problem with one of the ports, such as the loss of connection to an end-node, the media converter shuts down the connection to the other port, thus notifying the end-node that the connection has been lost.

For example, if the network twisted pair cable on a AT-PB1005G were to fail, the module would respond by dropping the link on the fiber optic port. In this way, the AT-PB1005G notifies the end-node connected to the fiber optic port that the connection on the twisted pair port has been lost. If the failure had started with the fiber optic cabling, the unit would drop the link to the twisted pair port.

The value to this type of network monitoring and fault notification is that some hubs and switches can be configured to take a specific action in the event of the loss of connection on a port. In some cases, the unit can be configured to seek a redundant path to a disconnected end-node or send out a trap to a network management station, alerting the network administrator of the problem.

Note

MissingLink or Smart MissingLink is disabled when you perform a link test. Consequently, to ensure that the MissingLink or Smart MissingLink is enabled on the media converter, always set the Mode Selection button so that the ML or SML LED is green during normal network operations.

Smart MissingLink

Like MissingLink, the Smart MissingLink feature terminates the link on the failed port thereby notifying you when a connection has been lost. Additionally, Smart MissingLink indicates on which port the connection has failed. This is shown by a blinking LK LED on the good port.

For example, if the network twisted pair cable to the 1000Base-T port on the media converter were to fail, the LK LED on the 1000Base-X fiber optic port will blink, indicating a failed connection on the twisted pair port. The fiber optic port is still able to receive a signal.

The switch notifies the end-node connected to the fiber optic port that the connection on the twisted pair port has been lost. If the failure had started with the fiber optic cabling, the LK LED on the twisted pair port would blink.

The value to this type of network monitoring and fault notification is so that you can quickly see which port has failed and troubleshoot your network accordingly.

Cable Specifications

Twisted Pair Port

Table 4 lists the cabling specifications for the 1000Base-T twisted pair port.

Table 4 1000Base-T Twisted Pair Specifications

Connector	Cable	Maximum Distance
RJ-45	Shielded or unshielded twisted pair Category 5 or better	550 m (1,804 ft)

Fiber Optic Port

Refer to the **AT-G8SX and AT-G8LX GBIC Transceivers Installation Guide** for the cabling and fiber optic port specifications. This guide is available from the Allied Telesyn web site at www.alliedtelesyn.com.